REMARKS

Petition for Extension of Time Under 37 CFR 1.136(a)

It is hereby requested that the term to respond to the Examiner's Action of October 16, 2008 be extended three months, from January 16, 2009 to April 16, 2009.

The Commissioner is hereby authorized to charge the RCE Filing Fee, the extension fee, and any additional fees associated with this communication to Deposit Account No. 50-4364.

In the Office Action, the Examiner indicated that claims 1 through 23 are pending in the application and the Examiner rejected all of the claims.

Claim Amendments

Applicant has amended independent claim 1 to refer to the internal non-volatile "read/write" memory drive, and also to refer to a temporary "volatile" RAM drive. Additional amendments are also made to slightly clarify the operation of the invention.

Additionally, independent claim 12 has been amended so as to match the order of amended claim 1, and the additional limitations relating to the memory drives noted above are also submitted. Similar amendments are also made to the independent claim 23.

With respect to the dependent claims, minor amendments are made to the dependent claims corresponding to the amendments made to the independent claims.

Finally, new claims 24 and 25 are submitted, to provide additional claim coverage.

Regarding basis in the description for the proposed amendments, the fact that the non-volatile memory drive is a "read/write" memory drive is described at page 5, line 4, in the first paragraph of the detailed description. The fact that the temporary RAM drive is a

"volatile" RAM drive is described at page 3, second paragraph, second line, and again, in the "glossary" section of the specification, page 9. Support for new claims 24 and 25 is found in the specific description, and in particular in the pseudo-code given on page 7. Hence, no new matter is added by any of the proposed amendments to the claims.

Rejections under 35 U.S.C. § 103

On page 2 of the Office Action, the Examiner rejected claims 1-2, 4, 12-13, 15 and 23 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,591,376 to VanRooven in view of U.S. Patent No. 6,944,757 to Wilks. On page 5 of the Office Action, the Examiner has rejected claims 3 and 14 under 35 U.S.C. §103(a) as being unpatentable over VanRooven and Wilks and further in view of U.S. Patent No. 6,421,009 to Suprunov. On page 7 of the Office Action, the Examiner rejected claims 5-6, 11, 16-17, and 22 under 35 U.S.C. §103(a) as being unpatentable over VanRooven and Wilks and further in view of U.S. Patent No. 6,532,535 to Maffezzoni. On page 11 of the Office Action, the Examiner has rejected claims 7-9 and 18-20 under 35 U.S.C. §103(a) as being unpatentable over VanRooven and Wilks and further in view of U.S. Patent No. 6,992,991 to Duske. On page 15 of the Office Action, the Examiner has rejected claims 10 and 21 under 35 U.S.C. §103(a) as being unpatentabe over VanRooven and Wilks and further in view of U.S. Patent No. 6,853,710 to Harris.

The Present Invention

As amended herewith the claims of the present invention relate to a portable computing device controlled by an operating system, in which during boot of the device the

operating system may be loaded intact, but if it is found that an internal non-volatile read/write memory drive, that is used to complete the boot of the device to provide a functional GUI, is corrupted, then the non-volatile read/write memory is automatically swapped with a temporary volatile RAM drive, to enable the device to complete the boot. In a preferred embodiment, the swapping process comprises un-mounting the corrupt non-volatile read/write memory drive, and mounting the temporary volatile RAM drive in its place, so that it has the same drive letter as was allocated to the corrupt non-volatile read/write memory drive.

One advantage of the above is described in the specification at page 3, last paragraph, in that the code used by the device does not need to be redesigned so as to run without a read/write drive, and it also means that applications on the device can continue to offer much of the normal functionality provided by the device. Of course, the use of the volatile RAM drive in place of the non-volatile read/write memory drive may only be temporary, because, although applications may be saving data to the temporary volatile RAM drive in place of the non-volatile read/write memory drive, when power to the device is shut off, the temporary volatile RAM drive will lose the data stored therein. Nevertheless, more generally, the drive swapping capability provided by the present invention during boot of the device will at least allow the device to boot up, and at least some operations to be performed, and hence renders the device more resilient to corruption occurring in the non-volatile read/write memory drive. This is of particular significance, given that, in preferred embodiments, the non-volatile read/write memory drive is preferably a flash drive, where corruption can be quite common.

With the accompanying amendments, the independent claims make clear the nature of

the drives that are swapped, and the time at which the swap takes place i.e. during boot. By

referring to a "non-volatile read/write" memory, these features are intended to have their

normal meaning in the art i.e. that data is stored by the drive even without power being

applied thereto, and that data can be both read from and written to the drive. By referring to a

"volatile" RAM drive, again this is intended to have the usual meaning in the art i.e. that the

data stored in the drive is lost when power is removed therefrom.

A *Prima Facie* Case of Obviousness Has Not Been Established

KSR (*KSR International Co. v. Teleflex Inc.,* 127 S. Ct. 1727, 82 USPQ2d 1385

(2007) requires that an Examiner provide "some articulated reasoning with some rational

underpinning to support the legal conclusion of obviousness." Further, an Examiner must

"identify a reason that would have prompted a person of ordinary skill in the relevant field to

combine the elements in the way the claimed new invention does," In addition, the Examiner

must make "explicit" this rationale of "the apparent reason to combine the known elements in

the fashion claimed," including a detailed explanation of "the effects of demands known to

the design community or present in the marketplace" and "the background knowledge

possessed by a person having ordinary skill in the art."

The present claims are patentably distinguished from the combination of VanRooven and

Wilks. More particularly, VanRooven describes an arrangement that allows a conventional ROM

to be replaced with a read-only disk partition, to thereby get around the expense of conventional

ROM components (see column 3, line 1, and lines 15 to 19, of VanRooven). This disk-based

ROM (the "/boot" partition) stores a fail safe copy of an initial operating system kernel, as well

as a back-up copy of a primary image containing the data environment and operating system

routines needed to install an embedded operating system (see column 3, lines 2 to 6, of

VanRooven). Another read-only disk partition ("/dist") stores a back-up copy of the primary

image as well. It should be noted that the various disk partitions are, in the embodiment of

VanRooven, partitions on the same hard disk drive (see figure 2, and column 3, lines 63 to 66, of

VanRooven).

On power-up, the initial OS kernel is loaded into RAM from the /boot partition (see

column 3, lines 8 to 9, and column 5, line 67 to column 6, line 1, of VanRooven). The initial

OS kernel then performs several script routines to verify whether any files required for boot

up are corrupted. In particular, as described at column 6, lines 35 to 45, the OS kernel

determines whether the primary image file in the read-only disk partition /dist is damaged or

corrupt, and if it is then this file can be restored by uncompressing a compressed copy of the

file (see column 6, lines 38 to 40, of VanRooven). However, if the compressed copy of the

file has been corrupted, then the OS kernel can replace the corrupted file with another copy of

the compressed image file stored on the ready only partition /boot (see column 6, line 41 to

45, of VanRooven). By using these read-only file systems the expensive ROM component

can be eliminated (see column 3, lines 16 to 18, of VanRooven), and because the /boot

partition that serves as the disk space ROM is read-only, corruption of the primary image and

OS kernel stored within it is improbable (see column 3, lines 22 to 24, and column 6, lines 61

to 67, of VanRooven).

Thus, in summary, in VanRooven read-only disk partitions are used to store an initial OS kernel and a primary image of the full operating system, together with compressed versions thereof, which can be used for recovery purposes should the primary versions become corrupted. Using such techniques, expensive conventional ROM components can be replaced with a hard disk in devices which make use of embedded operating systems.

Comparing VanRooven to the present invention as now claimed, nowhere is it described in VanRooven that, during boot, when an internal non-volatile read/write memory drive that is used to boot the device to a functional GUI is found to be corrupted, then that drive is automatically swapped with a temporary volatile RAM drive to enable the operating system to complete the boot, as is claimed herein. Instead, VanRooven only ever discloses non-volatile disk based memory being used, which is partitioned into read-only partitions. Nowhere within VanRooven is it described that a non-volatile read/write memory drive may be swapped with a temporary volatile RAM drive as claimed. As noted previously, the advantages of the claimed invention provided by the claimed operation are that the device can continue to boot to provide at least some of its functionality, and hence resilience to corruption in the non-volatile read/write memory drive is increased. While VanRooven may describe an arrangement to improve resilience of a boot process in the device, the mechanism used in VanRooven is not that of the claimed invention wherein a non-volatile drive that is found to have corrupted data is swapped with a volatile drive so as to complete the boot. Instead, in VanRooven, back-up (compressed) copies of data required for boot stored on different non-volatile read-only disk partitions are relied upon.

Wilks neither teaches nor suggests the above-cited elements absent in VanRooven.

Each of the independent claims (and thus all claims) recite these elements neither taught nor

suggested by VanRooven and Wilks, alone or in combination. Accordingly, the claimed

invention is both novel and non-obvious.

Regarding the dependent claims, as each of the dependent claims incorporate the

features of the independent claim on which they depend, each of the dependent claims is also

distinguished from the cited prior art, for the same reasons. Further, the remaining

references (Suprunov, Maffezzoni, Duske and Harris) neither teach nor suggest the elements

identified above as missing for VanRooven and Wilks.

The cited references do not render the present invention unpatentable. Accordingly,

the Examiner is respectfully requested to reconsider and withdraw the rejection of the claims

under 35 U.S.C. §103.

Conclusion

The present invention is not taught or suggested by the prior art. Accordingly, the

Examiner is respectfully requested to reconsider and withdraw the rejection of the claims. An

early Notice of Allowance is earnestly solicited.

1152005.1 4/15/09

The Commissioner is hereby authorized to charge the RCE filing fee, the extension fee, and any fees associated with this communication to applicant's Deposit Account No. 50-4364.

Respectfully submitted

April 15, 2009
Date

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